

**ADAPTATION OF STATISTICAL PARSERS**  
**BASED ON MATHEMATICAL TRANSFORM**

**Abstract of the Disclosure**

An arrangement for adapting statistical parsers to new data using a mathematical  
5 transform, particularly a Markov transform. In particular, it is assumed that an initial  
statistical parser is available and a batch of new data is given. The initial model is mapped  
to a new model by a Markov matrix, each of whose rows sums to one. In the  
unsupervised setup, where "true" parses are missing, the transform matrix is obtained by  
maximizing the log likelihood of the parses of test data decoded using the model before  
10 adaptation. The proposed algorithm can be applied to supervised adaptation, as well.